

## **REMARKS/ARGUMENTS**

### **(a) Summary of Final Office Action**

In the Final Office Action dated November 30, 2006, claims 26 to 47 were withdrawn from consideration as being directed to a non-elected invention. Claims 20, 21, 48 to 54, 57, 58, 61 to 63, 65 to 69, 72 to 74 and 76 to 81 were rejected under 35 U.S.C. § 103(a) as being unpatentable in light of the combined teachings of United States Patent No. 6,358,729 of Ferranti, European Patent No. 0 497 214 of Fattinger and United States Publication No. 2002/0170858 of Maddux et al. The Examiner raised additional obviousness-based rejections against claims 49, 55, 56, 59, 60, 64, 70, 71 and 75.

In the Final Office Action, the Examiner takes the position that:

"At the time of the invention, it would have been obvious to add a metallic agent to the hydrophobic coating disclosed by Fattinger in the system of Ferranti. Maddux teaches in paragraph [0041] that it is possible to coat metal oxides onto filter media grains, and that the presence of metal oxides are capable of "expediting the effectiveness" of the biofiltration apparatus. Maddux teaches that sulfur contaminants are effectively removed from a waste stream when contacted by ferric iron derived from iron oxides coated on the surface of filter media particles." (see page 5 of the Final Office Action.)

Moreover, in explaining why the arguments against the combination of Fattinger, Ferranti and Maddux submitted by the applicant in the response to office action dated September 27, 2006, were not persuasive, the Examiner stated: "Although Maddux describes a liquid filtration process, there is no reason to believe that the same configuration of metal oxide particles would be incapable of removing sulfur contaminants from a gas." (see page 14 of the Final Office Action.)

### **(b) Applicant's Further Submissions**

The applicant has carefully considered the Examiner's position in this matter and respectfully disagrees for the reasons set out below.

As a preliminary matter, paragraph [0041] of Maddux as understood by the applicant does not teach that the presence of metal oxides are capable of expediting the effectiveness of the biofiltration apparatus. The first two sentences of the subject paragraph are reproduced below for the Examiner's convenience:

"As the bio-media balls become coated with metal oxides, the coatings serve as catalysts for oxidation and removal of additional precipitate from the

groundwater. According to a preferred embodiment of the invention, the bio-media balls are pre-coated with metal oxides before being placed in the baskets 180 and inserted into the tank to expedite their effectiveness." [underline added for emphasis.]

A careful reading of this passage reveals that the pre-coating of the bio-media balls with metal oxides may expedite the effectiveness with which the bio-media balls carry out their function (i.e. as catalysts for oxidation and removal of additional precipitate from the groundwater).

The applicant further wishes to clarify the Examiner's characterization of the teachings of Maddux. The Examiner has taken the position that Maddux teaches that sulfur contaminants are effectively removed from a waste stream when contacted by ferric iron derived from iron oxides coated on the surface of filter media particles. The applicant wishes to emphasize that the term "waste stream" as used in this context should be understood in a narrow sense to mean groundwater since the teachings of Maddux relate to the removal of contaminants in groundwater only. This is a critical point because in the Final Office Action, the Examiner appears to be of the view that it would be obvious to have metal oxide coated particles in a gas-phase biofilter to remove contaminants from a gas (one type of fluid or waste stream) simply because these particles have been used in a liquid biofilter system to remove contaminants in groundwater (i.e. another type of fluid or waste stream).

As concerns the obviousness rejection of claim 20, the applicant believes the rejection is not properly founded, as the Examiner has not established the necessary elements. In order for a prima facie case of obviousness to be established, it is necessary to show three elements: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one skilled in the art, to modify the reference or to combine the reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references) must teach or suggest all of the claim limitations. If any one of these criteria is not met, the case for obviousness has not been made.

The applicant respectfully submits that the Examiner has not provided, nor pointed to, any suggestion or motivation in any of the combined prior art references, which would motivate a person skilled in the art to add the metal oxide particles of Maddux to the biofilter media of Fattinger to be used in the gas-phase biofilter of Ferranti. The only motive cited by the Examiner for the combination appears to be that there is no reason to believe that the metal oxide particles would be incapable of removing sulfur contaminants from a gas. However, the Examiner has not explained the basis for this statement. In the applicant's respectful view, this statement is no more than conjecture. It does not have its origin in any of the references. The only evidence there is that the metal oxide particles in the biofilter media can successfully be used to remove contaminants in a waste gas stream are found in the applicant's own specification. However, it is well-established law that the suggestion to combine and the reasonable expectation of success must be founded in the prior art and not in the applicant's disclosure (see *In re Vaeck*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991).) The fact that there is no reason to believe that the metal oxides of Maddux would be incapable of removing sulfur contaminants from a gas cannot take the place of proper motivation for the


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proposed combination. In light of the foregoing, it is respectfully submitted that the case for prima facie obviousness in respect of claim 20 and all claims dependent therefrom (i.e. claims 21 and 48 to 81) has not been met.

In view of the foregoing submissions, the applicant respectfully submits that this application is in condition for allowance. Accordingly, the applicant respectfully requests that a timely Notice of Allowance be issued in this case. If after reviewing these submissions, the Examiner believes that a telephone or personal interview would facilitate the resolution of any remaining matters, the undersigned attorney may be contacted at the number set forth herein below.

Respectfully submitted,

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Date

  
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